

Working Long Hours and Having No Choice

Time Poverty in Guinea

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Abstract

This paper provides a new definition of ‘time poverty’ as working long hours and having no choice to do otherwise. An individual is time poor if he/she is working long hours and is also monetary poor, or would fall into monetary poverty if he/she were to reduce his/her working hours below a given time poverty line. Thus being time poor results from the combination of two conditions. First, the individual does not have enough time for rest and leisure once all working hours (whether spent in the labor market or doing household chores such as cooking, and fetching water and wood) are accounted for. Second, the individual cannot reduce his/her working

time without either increasing the level of poverty of his/her household (if the household is already poor) or leading his/her household to fall into monetary poverty due to the loss in income or consumption associated with the reduction in working time (if the household is not originally poor). The paper applies the concepts of the traditional poverty literature to the analysis of time poverty and presents a case study using data for Guinea in 2002–03. Both univariate and multivariate results suggest that women are significantly more likely to be time poor than men.

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WORKING LONG HOURS AND HAVING NO CHOICE: TIME POVERTY IN GUINEA

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1. Introduction

‘The poor can only rely on their labor as their main asset’ is a common claim stressing that the poor generally do not have land or other assets, but can engage in (paid or unpaid) work to meet their needs and hope to escape poverty. In this paper, we will focus on those situations where this is not enough, that is, situations in which people are consumption poor despite devoting very substantial time to work activities. This is what we define as ‘time poverty’—the need to spend long hours working (in either the labor market or in domestic work) because the alternative would be (even deeper) consumption poverty. This approach recognizes that poverty is multidimensional, and that lack of time aggravates consumption or income poverty. Because time can be measured and recorded at the individual level more easily than income or consumption can, this approach also allows for an individual-based measurement of poverty, at least as it relates to time, rather than the traditional household-level one.

In Sub-Saharan Africa, the issue of time use and its relationship to consumption poverty is especially important because of the high workload carried by many. Households have a high probability of being consumption poor, so that any occasion to enable them to make a better livelihood, for example by shifting time from low- to high-productivity activities should be pursued. Furthermore, time use issues have strong gender dimensions, as African women often have to work long hours for domestic chores and the collection of water and wood apart from working in the fields or in other labor market activities. Essentially, when considering domestic work as well as labor market work, the identification of who is time poor is reversed—women become much more time poor than men, and this matters for policy interventions.

The aim of this paper is to refine the definition of ‘time poverty’ that we used in previous work (author’s work, 2006) by combining the concept of time poverty as in ‘working long hours’ (our old definition) with consumption poverty. We obtain measures of time poverty for a population as a whole and for various groups of individuals. Specifically, using data from a 2002-03 survey for Guinea, this paper compares estimates and profiles (univariate and multivariate) of time poverty under our new approach with the estimates that we obtained previously without the monetary poverty constraint imposed as a condition to be time poor. A special focus is placed in the paper on comparisons by gender. We find that women are more likely to be time poor than men, and even more so according to our new definition. We also compare time poverty for different types of individuals, and conduct a simple regression analysis

of the probability to be time poor. The rest of the paper is structured as follows. In section 2 we will briefly review the relevant literature. After outlining our analytical framework in section 3, we present empirical results obtained with the Guinea survey in section 4 on the extent of time poverty in that country. The concluding session will highlight the policy implications of our approach.

2. Conceptual framework

The idea that time, and not just income, is an input to the production of commodities, and provides therefore direct utility, was already clear in the seminal work of Gary Becker (1965). Becker's approach recognizes the importance of time in household production and consumption activities—the household maximizes its utility through consumption of commodities that are themselves produced by combining inputs of time and market goods. The theory implies that in choosing the desired combination of commodities the household also decides how to allocate the time of its members between market work and household production and consumption.

While Becker's theory has the clear merit of recognizing that household activities are productive and that the efficiency and allocation of time crucially affect the household's utility, it has been criticized by feminist scholars for treating the 'household' as a unit and disregarding the complex internal dynamics that are profoundly shaped by gender roles. The work of gender and feminist economists has also emphasized the importance of taking into account women's disproportionate engagement in unpaid activities (such as subsistence farming) and household labor. For example, Ester Boserup (1970) stressed the strong demand on women's time of tasks such as fetching water and wood, food production, and other subsistence activities. The importance of measuring unpaid work in the subsistence sector, informal sector, domestic work, and even volunteer work has been advocated in order to obtain a better measure of economic activity (it has for example been argued that unpaid work should be incorporated in GNP statistics), but also to better understand the survival strategies of the poor (Lourdes Beneria, 1999; Sylvia Chant, 2003). Clearly, the relative specialization of women in unpaid work is related to comparatively lower opportunity costs of women's labor (e.g. Francine Blau and Marianne Ferber, 1986).

The sociological literature, especially in the context of developed countries, has also devoted a lot of attention to 'time poverty' and the use of time in general. In particular, a large

body of work has focused on the increasing time pressures in workers' lives and on the gender-specific implications of the organization of the domestic division of labor. For example, Arlie Hochschild (1989) documents how in the US, in two-career parent households, women do more housework than their husband (the 'second shift'), despite being equally engaged in paid work.² When men and women are both in paid employment, time poverty emerges as a major social problem affecting in a negative way the lives of the workers and those of their families, in practical and emotional ways. This is true in the US (Hochschild, 1997), but also in the UK (Colette Fagan, 2001), and in many other countries where the labor market demands long hours. A characteristic of this literature is the connection made between time poverty and high occupational status, given that in developed countries long hours are typically worked by individuals who are in top-level positions. Moreover, time deprivation is more likely to affect 'dual-career' couples (Rhona Rapoport and Robert Rapoport, 1976; Judy Wajcman, 1998). While this literature has drawn attention to the issue of time poverty and the organization of the domestic division of labor, it did not link explicitly time poverty with income poverty, but rather with class and occupational status.

The concept of 'time poverty' was probably used for the first time by Clair Vickery (1977) in the US context to identify those households whose available levels of time are not sufficient to provide a non-poverty standard of living. Her aim was to define a two-dimensional measure of household needs accounting for not just money, but also the time requirements to achieve a minimal level of consumption (corresponding to the poverty line). For this purpose she calculated the trade-off between money and time (a threshold curve) representing the composite poverty line, so that households are defined as poor if they have less than a certain combination of time and money. In the same spirit, Robert Goodin et al. (2008) define well-being in terms of both monetary resources and time. The authors define the 'minimum necessary' time as the amount of time needed to earn an income corresponding to the poverty line and use this concept to distinguish between those who work long hours by necessity and those who work long hours 'by choice', that is to live a more comfortable life. They also define 'discretionary time' as the time that is left after the minimum necessary time has been spent in paid and unpaid work and personal care—essentially a measure of 'temporal autonomy' or control of time. Cross-country

² They calculate that women worked roughly fifteen hours longer each week than men and that, over a year, they worked an extra month of twenty-four-hour days.

comparisons indicate that in Finland and Sweden people enjoy about ten more hours of discretionary time than in Australia or the US. Tania Burchardt (2008) applies a similar method to investigate time and income poverty in the UK. She defines ‘free time’ as the time left to the individual after time spent in personal care, paid, and unpaid work is taken into account. Using a relative poverty measure for both disposable income and actual free time (set at 60 percent of the median of each distribution), she found that only 1.6 percent of all working age adults are time and income poor. She also investigates the ‘time-income capability’ boundary, that is, a range of time-income combinations available to each individual, which requires more objective (‘absolute’) measures of minimum necessary time.

Our paper is also related to the ILO concept of “decent working time” as it applies to the environment of developing economies. Almost a century ago, during its first 1919 Convention, ILO developed an international standard on working time based on the idea that working excessively long hours represents a risk for workers’ health, while negatively affecting the workers’ families as well. Since then, the ILO standards on working time, rest periods, shift work, night work, and annual holidays have been periodically updated to provide guidelines to structure the working time in ways that promote workers’ health and workplace safety. The evolution of the ILO position on working time has to be understood in the context of the “Decent work for all” overall goal of the ILO, which consists in “*promoting opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security, and human dignity*” (ILO, 1999). That is, working time is one dimension of a broader agenda aiming at balancing workers’ needs with business requirements.

The “decent working time” concept of the ILO appears to be mainly concerned with working time in the *labor market* (even though the ILO has conducted extensive work on unpaid work). Given the large amounts of time allocated to domestic work in developing countries, one could argue that the ILO concept mostly applies to the productive environment of developed countries. Only recently did the ILO conduct a study to less developed economies, documenting working time policies and practices in over 50 developing and transition countries (Sangheon Lee et al., 2007). Albeit focusing just on “productive work” in the formal and informal sector, the report estimates that 22 percent of the global workforce (or 614 million workers) are working “excessively” long hours. At the same time, a considerable number of individuals are working short hours because of underemployment, and are thus at higher risk of falling into poverty. The

report also finds a clear gender gap in working time—men tend to work longer average hours than women worldwide, with women working shorter hours in almost every country studied. The explanation, according to the report, lies probably in women bearing the primary responsibility for unpaid work and care work for the children and the elderly, but this portion of the working time is not documented in the study.

Also relevant to our work is the empirical literature that shows that who controls cash income in the household has important consequences for how the income is spent. As shown among others by John Hoddinott and Lawrence Haddad (1995; see also Lawrence Haddad, 1999), Maurizio Bussolo et al. (2009) and Prosperine Backiny-Yetna et al. (2009), a higher share of labor income earned by women within a household tends to increase the share of total spending allocated by the household to investments in human capital, especially for children. In turn, these investments tend to reduce poverty in the long run. Therefore, the fact that women are working mainly at home on domestic chores without being paid may have in itself negative implications for future poverty reduction.

Within the empirical literature, our work is part of a broader renewed interest observed in recent years in analytical work on the economics of time use (see for example the papers in Daniel Hamermesh and Gerard Pfann, 2005). The allocation of time has implications in a wide range of areas, as illustrated for example by work on transportation (Junyi Zhang et al., 2005) and taxation (Patricia Apps and Ray Rees, 2004). In developing countries, the issue of time use has been discussed in relationship among others to the ability of household members to increase their supply of labor (Constance Newman, 2002), given strict time constraints due among others to limited access to basic infrastructure services. The role of illness in limiting the ability of women to take advantage of economic opportunities due to the burden of care has also been highlighted (Nadeem Ilahi, 2000, 2001). A broader discussion of the implications of time use issues for growth and development is available in the report “Engendering Development” by the World Bank (2001; see also Mark Blackden and Chitra Bhanu, 1999, Alan Gelb, 2001, Apps, 2004, United Nations Development Programme,³ 1995, and Blackden and Wodon, 2006).

³ According to the 1995 Human Development Report (United Nations Development Programme, 1995), using data from a sample of 31 countries, women’s share in total work was 53 per cent in developing countries and 51 per cent in industrial countries. Moreover, the distribution of women’s time was two thirds in unpaid work and only one-third in paid work (for men these percentages are reversed). In developing countries, men were found to spend even less time in unpaid work.

3. Analytical Framework

3.1 *Defining time poverty*

One way to consider the issue of time poverty is to argue that individuals who are extremely pressed for time are not able to allocate sufficient time for important activities, and are therefore forced to make difficult trade-offs. The analogy with consumption poverty would be a household that, because of insufficient income, would need to sacrifice some key basic needs in order to be able to afford other basic needs. However, unlike consumption or income, where economists assume that ‘more is better’, time is a limited resource – more time spent working in paid or unpaid productive activities means less leisure, and therefore higher ‘time poverty’. To be more precise, we defined in previous work time poverty as the fact that some individuals do not have enough time for rest and leisure after taking into account the time spent working, whether in the labor market, for domestic work, or for other activities such as fetching water and wood (authors’ work, 2006).

In this paper, we suggest to redefine time poverty in a more restrictive way in order to distinguish between those who work long hours because ‘of need’ rather than because ‘of choice’, which relates to the ILO decent working time idea.⁴ But on the other hand, we also want to take into consideration not just the time worked in the labor market, but the whole amount of time worked, including unpaid work and the time spent working in domestic activities, which in developing countries represent a large portion of the individual working time, especially for women, and generally cannot be ‘marketable’.

⁴ We use ‘freedom of choice’ in a simplistic way to mean a broader set of options. Obviously the definition of what this means in practise is not a straightforward one. One possibility is to use a concept of minimum necessary time (an absolute time poverty line) and calculate all possible combinations of time and income that the individual can generate by working different numbers of hours and purchasing different amounts of replacement services, while still meeting minimum obligations (see Burchardt, 2008). Other alternative definitions of ‘freedom of choice’ are possible; for example, one could calculate the share of time spent providing for basic needs over the total time spent as an indicator that helps distinguish people who work long hours by necessity vs. ‘free choice’ (we thank one of the referees for this suggestion). It should be noted however that the actual time spent in meeting basic needs when used as an indicator of the constraints faced by household members in the use of their time is itself dependent on the poverty status of the household—i.e. the fact that very poor people spend a lot of time on the fulfillment of basic needs is in part due to their poverty which prevents them to live in areas with access to piped water, so that they need to spend significant time fetching water; this in turn results in less time for paid work (as noted by a referee, poor people’s time allocations are devoted first to activities that full-fill their basic needs, which is an outcome of their revealed preference functions, as noted by Pouw, 2008). Another issue is that some among the poor have very few options in the paid labor market and may end up spending more time in basic needs activities simply because they are underemployed.

Thus, the key change in this paper versus our previous work is that we define as ‘time poor’ only those individuals who work long hours and at the same time belong to households that are poor or would become poor if the individuals were to reduce their working hours up to the time poverty line. The idea is to discriminate between those individuals who work long hours and yet are consumption poor (they have ‘no choice’ but to work long hours when this is the only way to generate enough earnings in order not to be income or consumption poor, or at least to be less poor) from those who work long hours but are definitely above the consumption poverty line, and are therefore less constrained.

Our measurement framework is straightforward as we simply apply the traditional concepts and techniques used for the analysis of income or consumption poverty to the use of time. For the reader who may not be familiar with these concepts, we follow their presentation as provided by Aline Coudouel et al. (2002), and simply adapt this presentation to the measurement of time poverty. In practice, in most empirical research on poverty, poverty measures of the so-called FGT class (James Foster, Joel Greer, and Erik Thorbecke 1984) are used. The first three measures of this class are the headcount index of poverty, the poverty gap, and the squared poverty gap. For example, in a time poverty framework, the headcount index would be the share of the population that is time poor, i.e. the proportion of the population that works a number of hours y that is above a certain time poverty line z , possibly subject to other constraints as well.

In what follows, we will compare two different definitions of time poverty. The first definition, which was used in author’s work (2006), relies simply on the number of hours worked by an individual. In the second definition, which we believe to be more appropriate to emphasize the issue of choice and decent work, two conditions are needed to define an individual as time poor. First, the individual has to work more than a certain time poverty line. Second, the individual has to belong to a household that is poor, or at risk of becoming poor if the individual were to reduce his/her working hours by a number of hours larger than the difference between his/her current working hours and the time poverty line. Results will be provided for both definitions and compared.⁵

⁵ From now on, we will use the expression ‘time poverty’ for the first definition and ‘time and consumption poverty’ for the second definition.

Beyond the headcount index, the time poverty gap represents the mean distance separating the population from the time poverty line, with the non-time poor being given a distance of zero. This measures the time deficit of the entire population (as a proportion of the time poverty line), i.e. the amount of time that would be needed to shift all individuals who are time poor below a given time poverty line through perfectly targeted “time transfers”. Such transfers are actually provided to some households in some developed countries, for example through the provision of subsidies for taking care of children in working families (or simply of large families – in Belgium, households having three very young children may benefit from the help of a social worker at home.)

While the time poverty gap takes into account the distance separating the time poor from the time poverty line, the squared time poverty gap takes the square of that distance into account. When using the squared time poverty gap, more weight is given to those who have extra long working hours. The headcount, poverty gap, and squared poverty gap are the first three measures of the FGT class of poverty measures whose formula includes a parameter α taking a value of zero for the headcount, one for the poverty gap, and two for the squared poverty gap in the following expression:

$$P\alpha = \frac{1}{n} \sum_{y_i \geq z} \left[\frac{y_i - z}{z} \right]^\alpha$$

Note that in this definition, what matters is the fact that an individual is above the time poverty line (hence the $y_i - z$ value on the numerator), while in the traditional monetary poverty literature, what matters is the fact that a household is below a monetary line (we would then have instead the value of $z - y_i$ in the numerator). In terms of interpretation, it is worth noting that contrary to what happens with monetary poverty measures, the (normalized) time poverty gap need not always be smaller than the time headcount index, and the squared time poverty gap need not be smaller than the time poverty gap. When using $(z - y)/z$ as the household level indicator for consumption or income poverty, the normalization of $(z - y)$ by z implies that we always have values that are between zero and one. For time poverty by contrast, because the definition in (5) relies instead on the value of $(y - z)/z$, we may have relatively large values for $y - z$, so that some values at the individual level may be larger than one, and the poverty gap may itself have a higher value than the headcount index in the aggregate, especially if the time poverty line is set at a relatively low value. However, as long as one remembers that the division

by z is only used for normalization purpose, so that it does not affect the key properties that poverty measures must observe, this should not lead to confusion. An alternative normalization, which ensures that all the time poverty measures are between zero and one, is $(y-z)/168$ if we are using weekly hours as the benchmark (because there are 168 hours in a week).

3.2 *Caveats*

Because there is less consensus on the benefits and costs of time spent working than on the value of a higher consumption or income level for households, the very concept of time poverty may be challenged. One question relates to the treatment of those who are not time poor in the measurement of time poverty. It is important to realize that all poverty measures are censored variables. That is, for consumption or income poverty, only those below the monetary poverty line affect the consumption poverty measure, while the individuals above the monetary threshold are assigned a value of zero for their contribution to aggregate consumption poverty. Similarly for time poverty, only those above the time poverty line affect the time poverty measure, while the individuals below the time poverty line are assigned a value of zero for their contribution to aggregate time poverty. This means that by considering in the time poverty measure only those individuals who work more hours than the time poverty line, the measure is itself silent on the situation of the non time poor, apart from asserting that they are not time poor. In other words, no assumptions are made in terms of comparing the welfare in the time use dimension of those individuals who work, say, 40 hours versus 20 hours per week.

We would argue that precisely because it would be difficult to make comparisons of time use welfare between individuals who are within the normal range of work hours – some may prefer to work 20 hours while others may prefer to work 40 hours, the time poverty concept is the right one to use for the analysis because it does not require such comparisons of time-based welfare below a threshold that would be sufficiently high so as to ensure that trade-offs have to be made by individuals above that threshold. Said differently, the fact that poverty measures are censored makes such measures especially well adapted to the analysis of time poverty by considering only in the measures those who are time poor while not requiring any specific assumption for the comparison of working hours among individuals who are not time poor.

Still another question is whether individuals are really time constrained, or whether, for almost all individuals, there would be an ability to work more, in which case the concept of time poverty

would be for practical purposes mostly irrelevant. This is an empirical question, but evidence does suggest the presence of upper bounds on working time for individuals. For example, using data from Ecuador, Newman (2002) shows that when women took advantage of new labor market opportunities in the cut flower industry, their total labor time remained constant, so that men had to provide higher amounts of work in unpaid tasks. The analysis of seasonality in time use in Malawi provided by Wodon and Kathleen Beegle (2006) also suggests that there may be labor scarcity at crucial periods of the year despite underemployment in many other periods. These examples suggest that the concept of time poverty is a potentially important one.

A few more comments may be useful before presenting an empirical illustration. Firstly, when measuring time poverty, we have data at the individual level, while in most cases, when measuring income or consumption poverty, we only have aggregate data at the household level. This means that for time poverty, we can look at intra-household allocations and at the impact of intra-household time inequality on time poverty.

Secondly, there is always a difficulty in traditional poverty measurement in comparing the welfare of households of different sizes and composition, because of differences in needs between individuals, as well as economies of scale in consumption. To some extent, these difficulties persist for the measurement of time poverty, as there may be differences in needs for time poverty measurement, for example if children need more rest and leisure time than adults. By contrast, even though there are clearly economies of scale at the household level in terms of the amount of time required to perform some domestic tasks that benefit all household members at once, this is not problematic for the measurement of time use because we observe the hours of work of each individual.

Thirdly, an alternative definition of time poverty is obtained by defining as time-poor those individuals who have less than a certain amount of time for leisure and rest. This approach is perfectly equivalent to ours because the amount of time available in one day is fixed. If the amount of time available in a day were not bounded, we would need to use the “above the line” approach both for measurement and for assessments of the robustness time poverty comparisons, as done in the case of pollution and CO2 emissions by Paul Makdissi and Wodon (2004).

Fourthly, what is perhaps more arbitrary when analyzing time poverty as compared to consumption poverty is the choice of the time poverty line above which individuals are considered as overworked or time-poor, and thereby lacking enough time for leisure and rest. In

the income/consumption poverty literature, we often have clear nutritional-based “cost of basic needs” approaches to estimating poverty lines. When dealing with time poverty, the correct level for the time poverty line is less clear, at least if one wants to consider an allocation of time for leisure on top of what is strictly needed for rest from a health point of view. In practice, depending on the social context of the country for which the analysis is conducted, we may want to use relative as opposed to absolute time poverty lines together with some tests for the robustness of comparisons of time poverty obtained over time or across households groups to the choice of the time poverty line.

When combining time and consumption poverty, four groups of individuals can be defined. A first group, which is the focus of this paper, consists of the time and consumption poor—those who spend a lot of time on the fulfillment of basic needs and in other work activities but are unable to rise above the consumption poverty line. At the opposite end, a second group—not very interesting for policy purposes—is represented by the non time poor and non consumption poor. A third group consists of those who are overworked (time poor), but are not consumption poor. A question could be raised about whether individuals who work long hours in a well-paid job are actually ‘free to choose’, i.e. free to decrease the number of hours they work in a linear way. Maybe this is not possible and they are ‘forced to choose’ a combination of long hours and high income. We still believe that this group is less of a concern for the policy maker than the time and consumption poor. The fourth group consists of those individuals who are below the time poverty line but are consumption poor—the ‘underemployed’. In many Sub-Saharan African countries and in many other developing areas, lack of job opportunities and sluggish growth on the demand side and inadequacy of education on the supply side explain (among other reasons) why the consumption poor may not be able to increase their hours of work and remain underemployed.

3.3 *Data requirements*

Time-use surveys have been implemented for many years in several developed countries, but in developing countries, their use had been more limited so far, with much of the evidence coming from small-scale village-level instruments or otherwise small samples. Recently, thanks to efforts by the United Nations’ statistics division, nationally representative time use surveys have been carried in India and Nepal in 1999, Benin in 1998, Nigeria in 1999, South Africa in 2000,

Madagascar in 2001 and Mauritius in 2003. The results from these surveys are reviewed by Jacques Charmes (2005). For the measurement of time and consumption poverty using the approach proposed in this paper, household surveys are needed that include both time use and consumption data. Currently, time use modules have been included in a range of household surveys similar to the Living Standard Measurement Surveys (LSMS) promoted by the World Bank. In Sub-Saharan Africa, examples of LSMS-type surveys with time use modules include Ghana in 1991-92, 1998-99 and 2005-2006 (Harold Coulombe and Wodon, 2009), Guinea in 2002-03 (author's work, 2006), Malawi in 2004 (Beegle and Wodon, 2006), Mauritania in 2000, and Sierra Leone in 2003. This is by no means an exhaustive list, but it does indicate that more data are becoming available to conduct work on these issues. In turn, the availability of better data for time use analysis in developing countries makes it important to provide tools for analyzing such data, so that the data end up informing public policies, for example through the countries' Poverty Reduction Strategies.

4. Data and results

4.1 Time use statistics

To illustrate time poverty measurement and comparisons, we use data from Guinea for the year 2002-2003. The data are from the EIBEP (*Enquête Intégrale de Base pour l'Evaluation de la Pauvreté*) survey implemented between October 2002 and October 2003 by the *Direction nationale de la statistique* (DNS) of the Ministry of Planning.⁶ The Republic of Guinea, in West Africa, is a country of about 9 million people, 75 per cent of whom live in rural areas. It ranks among the poorest countries in the world—in 2005 54 per cent of the population was living below the consumption poverty line, and 19 per cent was in extreme poverty. Disparities between rural and urban areas are large, especially in access to education and health and basic infrastructure such as drinking water and sanitation. Women, especially rural women, are mainly employed in subsistence agriculture and informal work and bear the greatest burden in meeting daily basic needs of their families. Moreover, they are discriminated against in the labor market—both in employment and wages.

⁶ This is a nationally representative and somewhat standard priority survey with detailed modules on household composition, income, consumption, education, and health, among others. The survey also includes a time use module. The survey includes data on 7611 households, but 516 households were deleted from the analysis for various reasons leading to poor data for these households.

The individual-level indicator that we use to determine who is time poor is based on the total amount of time spent by individuals working, whether in the formal and informal labor market, in domestic chores or in collecting water and wood. Note that we have no information about the time spent caring for children, sick household members and disabled people. This probably leads us to underestimate the workload of individuals, even if we could argue that this activity is often performed as a ‘secondary activity’, i.e. in combination with one of the other productive or domestic activities recorded in the questionnaire and included in our estimates of the total time devoted to work. We also create a second definition of the total time allocated to work by adding to the components of the first definition the amount of time spent helping other households and in community services (this is done because it is unclear whether these activities are more for work than for leisure)

Figure 1 shows the distribution of the total individual working hours per week for adult individuals (aged 15+), separately for men and women, as well as for urban and rural areas. Women work a much higher number of hours than men, and a larger proportion of men than women do not work at all (9.9 percent of men vs. 6.4 percent of women). Similarly, individual working hours are much higher in rural than in urban areas. Moreover, in urban areas, the distribution of the hours worked is highly skewed with a large proportion of low values. For example, while in urban areas 10.4 percent of individuals do not work any hour at all, this percentage is 6.8 in rural areas. Table 1 provides data on the main uses of working time (more details on the distribution of time worked are provided in appendix tables A1 and A2). For example, under the first definition of working time, the mean working time in urban areas is 36.2 hours for the adult population (above 15 years of age), 38.8 hours for women, and 33.6 hours for men. While men spend more time on the labor market, the amount of time spent by women on domestic chores is much higher than for men. Girls also work longer hours than boys, again mainly due to a higher burden from domestic work, but the amount of work remains fairly reasonable, at an average of 5.5 hours per week. In rural areas by contrast, children work substantially more, for an average of 19.6 hours according to the first definition of working time. For adults, the average working time is 48.6 hours, again with a higher level for women than for men.

The average number of total working hours, the median, and the 25th and the 75th percentiles in the distribution of working hours are provided in table 2 at the national level and

for various groups of individuals. Clearly, throughout the distribution of time use, there are large differences between men and women, and between urban and rural areas. Using the second definition of total time worked (which includes also the time spent helping other households and in community services) slightly decreases the gender gap because men are relatively more likely than women to spend time in community services – but the qualitative results do not change. As for comparisons across urban and rural areas, the median total individual working time in rural areas is more than twice the median in urban areas. Interestingly, the gap between urban and rural areas in total individual working time according to definition 2 is larger than the gap according to definition 1 because individuals living in rural areas spend relatively more hours helping other households and in community services than urban individuals, despite their already higher total time spent in work and household activities.

Table 2 also provides data on time use for children. On average, children spend about 16 hours a week working in paid and unpaid tasks. The large difference between the mean and the median and the 25th and the 75th percentile suggests that these working hours are very unequally distributed. Working hours are much higher for children that do not go to school (about 25 hours/week on average) than for children that are currently in school (about 7 hours/week). Although this is not shown in the table, it is worth noting that children that are out of school spend about 17 hours/week on average in *paid* work (or farm or family business), while the median of their hours of paid work is zero. The time spent in paid work by children who go to school is by contrast negligible (0.5 hours/week on average). Therefore, while almost all children who work in the labor market (or family farm or business) are out of school, the opposite is not true; moreover, a large part of child labor is spent in domestic tasks and in fetching water and wood, among children both in and out of school. Finally, as is the case for adults, girls spend more time than boys in paid and particularly unpaid work (as previous tables had suggested). The gap at the mean is 34 percent – even higher than the one existing between adult men and women (25 percent). This gap is larger for children who are enrolled in school, suggesting that it may be more difficult for girls to find the time to study, especially in rural areas.

4.2 *Time poverty without consumption poverty constraint*

Since we have data at the individual level, we focus on individual-level measures of time poverty. In the absence of well established practices to measure time poverty, we use two

alternative relative poverty lines, a lower threshold equal to 50 hours per week and an alternative threshold equal to 1.5 times the median of the total individual working hours distribution. We have calculated the alternative threshold separately for children aged 6-14 and adults aged 15+ based on their own respective distribution. The resulting poverty lines are 9 hours for children (which is rather low) and 70.5 hours per week for adults (which is rather high).

We consider first in this section the definition of time poverty relying only on time worked. Table 3 shows the time poverty rates based on the two alternative poverty lines for adults and children, disaggregated by sex and urban and rural areas (all estimates are multiplied by one hundred to be presented in percentage terms). According to the definition of time poverty without the consumption poverty constraint and using the time poverty threshold of 50 hours, 43.7 percent of all adult individuals are time poor. This headcount is much higher for women (50.3 percent) than men (35.7 percent), and in rural areas (47.2 percent) as compared to urban areas (36.6 percent). More women living in rural areas are time poor (56.3 percent) than women living in urban area (35.8 percent). For men, it is the reverse, with urban men more likely to be time poor than rural men (37.4 vs. 34.7 percent). When we adopt a higher threshold of 70.5 hours for the time poverty line, the time poverty headcounts are lower, with the overall time poverty headcount dropping to 17.5 percent, but the patterns in terms of comparisons between groups are very similar. The differences between men and women are in this case even larger – moving from the lower to the higher threshold makes time poverty rates for women decrease by a factor of two, while time poverty rates for men decrease by a factor of almost four.

Table 3 also shows the child time poverty rates. The proportion of children working more than 50 hours per week is much smaller, at less than 10 percent nationally, but girls still work more than boys. If we adopt a relative time poverty approach, the threshold becomes rather low, at only 9 hours per week. Given that the relative time poverty lines is computed separately for children and adults, in each case with reference to *their own* hour distribution, we may very well have higher relative rates of time poverty among children than among adults. This is indeed what happens, but one could hardly consider a threshold of nine hours per week as being stringent, so that the estimates obtained with the relative approach in the case of children have limited value, apart from revealing that once again girls work more than boys, especially in rural areas due probably among others to the need to fetch water and wood.

Finally, in order to illustrate the use of higher poverty measures, we provide time poverty gap and squared time poverty gaps for the adult population in table 4, using the time poverty line for the normalization. As for table 3, all values have been multiplied by 100. The key conclusions in terms of comparing urban and rural areas, as well as men and women, are the same with these measures as what was observed with the headcount index.

4.3 *Time poverty with consumption poverty constraint*

When now turn to the new definitions of time poverty, which includes a constraint on consumption poverty (or the risk to become consumption poor if one reduces working time). In order to assess whether a currently non-poor household would become poor if an individual who works more than the time poverty line reduces his/her working hours, we need to have an estimate of the hourly earnings of each such individual. For many working individuals we observe wages, but for some we do not. The procedure we used consisted in estimating a wage regression (whose results are provided in Appendix Table A3) in order to impute hourly wages for those individuals working but without a wage (for example because they are self-employed). We also used alternative methods to value the time of working individuals based on the argument that only few individuals are actually paid a “wage” for one hour of their time. For this reason, we derived a value of time by dividing the household consumption by the total working time of all its members (a sort of “household consumption productivity” measure). We also used an alternative measure obtained by dividing the household consumption by the total number of hours spent by household members in employment (for a wage, in the informal labor market, or as contributing family members). Because the simulations results were very robust to alternative estimation methods we provide here only the results based on the actual wage data and the imputed wages as obtained from the regression analysis provided in appendix.

The estimates of time and consumption poverty among adults are reduced by slightly more than half, which is very substantial. With the time poverty threshold of 50 hours, 20.4 percent of all adult individuals are time and consumption poor. This headcount remains much higher for women (24.7 percent) than men (15.1 percent), and in rural areas (26.4 percent) as compared to urban areas (7.7 percent). As before, more women living in rural areas are time and consumption poor (31.5 percent) than women living in urban area (8.1 percent). For men, time and consumption poverty is now also higher in rural than in urban areas (19.5 vs. 7.4 percent),

while the ranking was reversed with the previous definition. Thus, the fact that consumption poverty rates are much higher in rural areas is affecting the urban-rural comparison of the profile of time and consumption poverty according to the new definition quite substantially.

When we adopt a higher threshold of 70.5 hours for the time poverty line, the time and consumption poverty headcounts are of course again lower, with the overall time and consumption poverty headcount dropping to 7.6 percent only, but again the differences between men and women become even larger – moving from the lower to the higher threshold makes time and consumption poverty rates for women decrease by a factor of about two, while time and consumption poverty rates for men decrease by a factor of more than four.

The data on children shows that for this age group, once a consumption poverty constraint is imposed on the definition of time poverty, time and consumption poverty becomes almost exclusively a rural phenomenon, especially if a high time poverty line is used. As for the profiles of time and consumption poverty observed with the poverty gap and squared poverty gap, they are similar to those observed for the headcount index.

4.4. *Correlates of time poverty*

What are the determinants or correlates of time poverty? To answer this question we ran probit regressions to explain the probability of being time poor as a function of personal, household and area variables. The analysis is again carried out at the individual level, i.e. each individual is classified as time poor or not depending on his or her own individual total time worked (assuming the household is poor or at risk of becoming poor). We focus on the adult sample only, since time poverty is a less serious issues for children. Among the regressors we included, beside the usual demographic variables (age, sex, and marital status), the educational qualifications, religion, the consumption quintile of the household, the number of infants (aged 0-5) and children (aged 6-14), adults (aged 15-64) and senior people (aged over 65), and their square values. We also included dummy variables for the presence of disabled people, and for households with only women⁷. Finally, we included geographical dummies for rural/urban areas and for the region of residence. Separate regressions were estimated for men and women.

⁷ We preferred this variable to the alternative “female headed household”, because many female headed households include several adult men.

The results are reported in Table 7 which gives the marginal effects estimated at the mean of the variables rather than the coefficients – for dummy variables the marginal effect represents the change in probability when the dummy variable changes from 0 to 1. Consider first the results without consumption poverty constraints from the first column (pooled regression with both men and women). Older individuals are more likely to be time poor, but the effect is reversed for very old individuals (negative coefficient for the quadratic term), as expected. The results indicates that women are 3 percentage points more likely to be time poor than men; for women living in rural area this probability increases by an additional 10 percentage points. The coefficient of living in rural areas is estimated to be negative (-7 percentage points), but this is driven by the male sample; by comparing the marginal effect of the rural dummy reported in columns 2 and 3, where different regressions are estimated for men and women, we notice that men living in rural area are *less* likely to be time poor, while for women there is no statistical difference. Obviously, being disabled significantly and substantially decreases the probability of being time poor, given that disabled people are less able to work in paid and unpaid tasks. Marital status is also associated with variations in the probability of being time poor, but this effect is significant (and substantial) only for women (with the exception of divorced men). Married women (either in monogamous or polygamous union) are more likely to be time poor than single never married women. A similar effect is estimated for divorced women and widows. Interestingly, women living in rural areas who are Christian are more likely to be time poor than women with other religions or with a Muslim faith.

The educational qualification is also a powerful predictor of time poverty, for both men and women, and especially in urban areas. Increasing education is associated with lower probabilities of being time poor; in rural areas where people with qualifications above primary education are extremely rare, especially among women, having completed primary education makes individual less likely to be time poor compared to those with no educational qualifications (-4.8 percentage points for men and -7.5 percentage points for women). Higher levels of education have an even larger impact as compared to no education, at least in rural areas. .

The coefficients for the number of infants do not provide a clear story, as most coefficients are not statistically significant. We included these variables among the regressors to test the idea that the presence of young children may require more time from adult members (but recall that time spent in child care is not explicitly collected in the survey). The coefficients for

older children tend to be more statistically significant and negative, suggesting that these children may provide substitute labor and therefore make adult members save time (but the quadratic term is negative, so that when there are many older children in the household, time is not saved anymore, perhaps because of the need to care for them, and organize their work and studies). As for adults, a negative coefficient is again estimated, suggesting some sharing of the work burden among more individuals (the quadratic term is positive in rural areas, but is has a small value). Thus more adults in the household makes everybody less likely to be time poor, but this gain is not observed for the elderly, probably because they do not work much. Finally, there are also a few geographical differences in the probability of being time poor according to Guinea's main natural regions, but in most cases the effects are not statistically significant.

Table 7 also provides the results when the definition of time poverty includes the condition on household consumption poverty. Because the proportion of individuals who are time and consumption poor is reduced under this new definition, the magnitude of several of the coefficients is also reduced, but qualitatively, most of the results remain the same. There are however some differences. For example, the fact of being a woman and to live in rural areas is now shown to be especially detrimental for time poverty, since the interaction term is positive and statistically significant. By contrast, the negative effect associated to being divorced or widowed for women in rural areas has vanished. Some of the variables for higher levels of education in the women sample drop out of the regression due to perfect predictions (there are no women with these levels of education who are time poor when to be considered as time poor one needs to be poor as well). The impact of demographic variables in terms of the number of children has been weakened, and there is now a positive relationship in rural areas, which could be associated to the fact that households with a larger number of children are more likely to be consumption poor. Having seniors also helps now, but again this may be due to the fact that seniors, who managed to live at an old age, are more likely to belong to comparatively richer households. The geographic effects also tend to be somewhat more significant. This is again more due to the role played by monetary poverty in the classification of who is time (and consumption) poor and who is not.

5. Conclusion

Time poverty has long been recognized as a constraint to development in Sub-Saharan Africa, with women working especially long hours due in part to a lack of access to basic infrastructure services such as water and electricity, but also due to the rising demands from the ‘care economy’. Yet despite a growing number of studies on time use in Africa and elsewhere, time poverty has remained loosely defined. In this paper, we have argued that the techniques used for the measurement and analysis of the determinants of consumption poverty can readily be applied to the issue of time poverty. The very concept of time poverty and the evidence on high workloads for women could be of use for policy makers. But when combined with other dimensions of welfare, such as consumption or income poverty, the analysis of time poverty can be even more revealing. We find for example that when we use a definition of time poverty that relies in part on the fact that an individual belongs to a household that is poor, time poverty affects women even more, and is especially prevalent in rural areas where infrastructure needs are highest.

One difficult issue in the measurement of time poverty is whether one should consider as time poor comparatively wealthy individuals or households whose members work longer hours in order to achieve higher levels of income or satisfaction at work. It could be argued that time poverty should apply to such individuals, because long working hours will indeed reduce the time available for leisure, rest, or friends and family. Moreover, in many cases, time can only be used in ‘chunks’, that is, it cannot be freely decreased (or increased) in a regular fashion. This means that (rich) individuals who work long hours may not have any other option but to work long hours. However, our approach does not rank these individuals who are not time and consumption poor as worse off than other individuals— simply, long hours of work would then be one of the many dimensions that may affect an individual’s level of welfare and satisfaction with life, but not time poverty per se in the absence of consumption poverty.

In this paper, we have taken the view that for development policy within the context, for example, of the Poverty reduction Strategies being implemented by many sub-Saharan countries, it is probably better to define as time poor only individuals working long hours without much choice not do so because they are already poor or would become poor if they worked less than the time poverty line. It also seems that this is a definition of time poverty that applies well to developing countries and is closer in spirit to the International Labor Office’s definition of

decent work as work that provides a decent standard of living. In fact, we believe that our definition of time poverty can be strongly defended for being particularly appropriate for policy, given that it identifies individuals that are consumption poor and do not have any more time resources to increase their material welfare. Our analysis has shown that there are two main reasons why this happens. The first reason is the long hours that many individuals—especially women—need to spend to meet their basic needs—in domestic work and in fetching water and wood, for example. The second reason is that the time of poor people, even when it is spent in paid work, is not very productive and does not generate much income (consumption). Obviously, this has important policy implications. The joint analysis ‘time and consumption poverty’ draws immediate attention to the relevance of unpaid and domestic work for household and individual welfare and to the importance of policies—for example, infrastructural policies and time-saving programs—to address the large burden of domestic work faced by women in particular.⁸ In this sense, measuring time poverty alongside consumption poverty is a gender-aware approach to poverty measurement. When the poverty analysis takes into account unpaid and domestic work in a prominent way (as we propose in our approach), it is possible to address the problem of the ‘low productivity’ of the time of the poor in a new and different light. ‘Low productivity’ is not just due to the lack of education, skills, and assets that is reflected in the low wage rate that the poor can obtain, but it is also due to the huge workload, the lack of household technology, and the inability of the poor to replace household production with market services.

Two limitations of our dataset are worth mentioning—the lack of data on care provided to children, older or sick individuals, people with disabilities, and the inability to document the overlapping of activities. As the feminist literature has pointed out one way in which women tend to resolve the multiple demands on their time is to combine one main activity with one or more ‘secondary’ activities, with important implications for their own, and their household’s welfare (Maria Floro, 1995). Care is often provided as a secondary activity, and while this does not affect the total time spent in paid and unpaid work, it definitely affects the intensity of that work. Our dataset, unfortunately, does not allow us to incorporate the work intensity dimension into the analysis. We can speculate, however, that the intensification of time use is likely to

⁸ While it is obviously the case that availability of or proximity to water and electricity can save women several hours a week, there are virtually no studies that show how the saved time would be spent, and in particular whether this time would be spent in (decently) paid work. In other words, while infrastructural policies are necessary it is less clear whether lack of infrastructure is the binding constraint to poverty or other policies would be required.

result in an underestimation of ‘time poverty’. Floro and Marjorie Miles (2003) found that multitasking is higher as household size increases (due, in particular, to the presence of children) and that higher income tends to lessen the amount of overlapping. Therefore, the intensification of time use is likely to be larger among poor households, thus making ‘time poverty’ more acute than we actually measure.

Our approach has the advantage of being simple to understand and easy to implement—characteristics that are important for a method or approach to become relevant for policy, especially in developing countries. Whether the relative poverty line should be set at 50 hours/week, or 1.5 the median, or at a different threshold can and will be questioned; the point is that we want to identify the individuals who are in the right tail of the total time spent in (unpaid and paid) work but still are consumption poor. It is this group, we believe, that should be brought to the attention of the policy maker.

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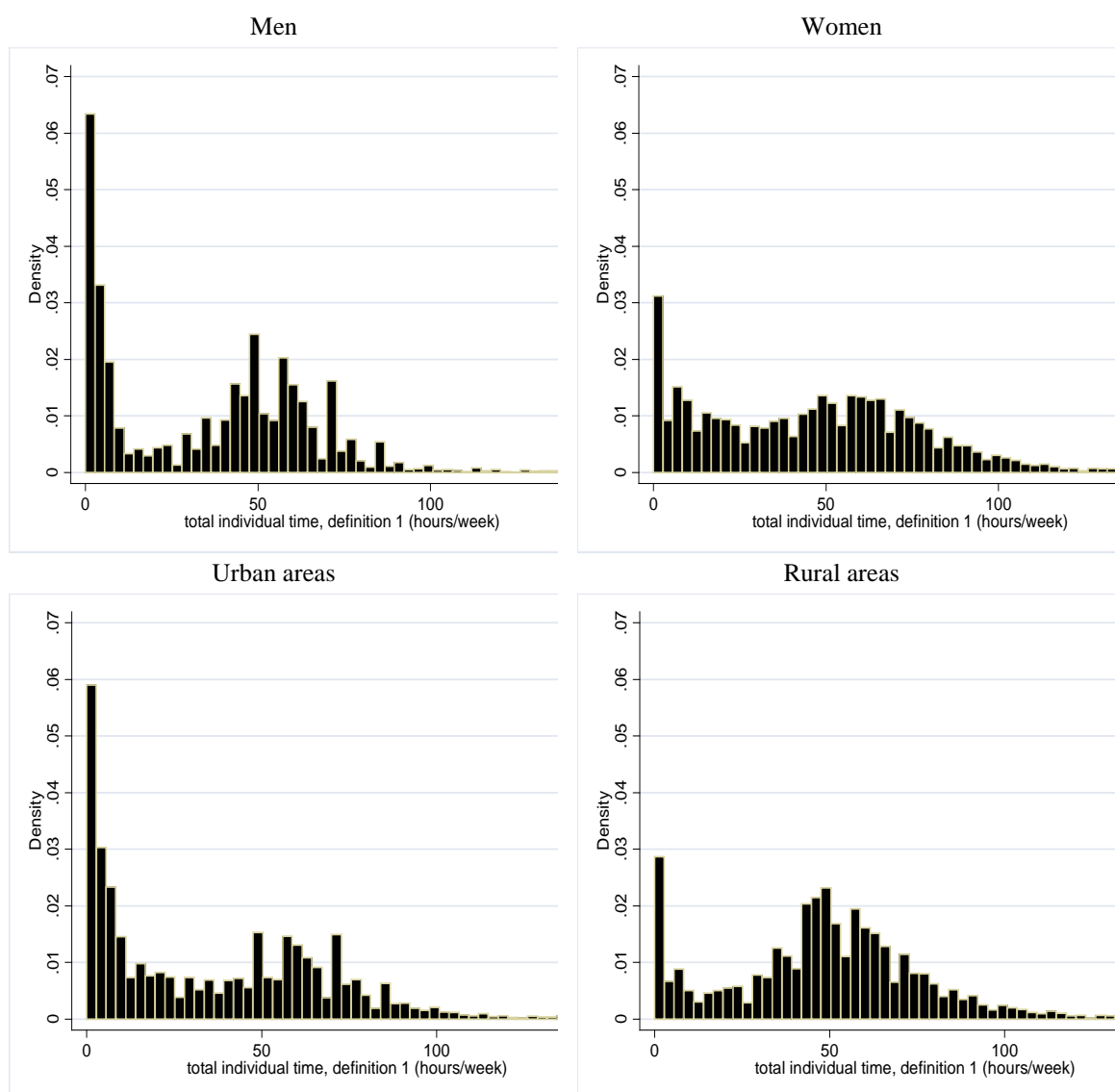
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Figure 1: Distribution of individual working time by sex and area (individuals aged 15+)



Source: Authors' estimation using EIBEP 2002-2003.

Table 1: Average number of weekly hours spent for various activities, by sex and age

		Age 6-14			Age 15+		
		Men	Women	All	Men	Women	All
National level							
1	<i>Cooking</i>	0.2	2.3	1.2	0.2	8.5	4.8
2	<i>Cleaning</i>	0.4	1.6	1.0	0.4	2.6	1.6
3	<i>Washing</i>	0.9	1.7	1.3	0.8	2.9	1.9
4	<i>Ironing</i>	0.2	0.2	0.2	0.5	0.7	0.6
5	<i>Market</i>	0.3	0.8	0.5	0.6	2.9	1.9
6	All domestic chores (1 to 5)	1.9	6.5	4.2	2.5	17.5	10.8
7	Collection of wood	1.9	1.1	1.5	1.1	1.8	1.5
8	Collection of water	1.3	2.1	1.7	0.6	2.7	1.7
9	Aid to other households	0.2	0.3	0.2	0.8	0.8	0.8
10	Community activities	0.2	0.1	0.1	0.9	0.5	0.7
11	<i>Work for a wage</i>	0.4	0.5	0.5	17.8	11.6	14.4
12	<i>Work in a farm of family business</i>	8.0	7.8	7.9	16.9	15.8	16.3
13	Work in labor market (11+12)	8.4	8.3	8.4	34.7	27.4	30.7
14	Total time (definition 1)	13.4	18.0	15.7	38.8	49.3	44.6
15	Total time (definition 2)	13.8	18.4	16.1	40.5	50.6	46.1
Urban areas							
1	<i>Cooking</i>	0.1	1.2	0.6	0.2	6.8	3.4
2	<i>Cleaning</i>	0.4	1.4	0.9	0.5	2.3	1.4
3	<i>Washing</i>	0.8	1.3	1.0	0.8	2.4	1.6
4	<i>Ironing</i>	0.2	0.2	0.2	0.7	1.1	0.9
5	<i>Market</i>	0.2	0.5	0.4	0.2	3.0	1.6
6	All domestic chores (1 to 5)	1.7	4.6	3.2	2.4	15.5	8.9
7	Collection of wood	0.3	0.1	0.2	0.2	0.2	0.2
8	Collection of water	0.6	0.9	0.8	0.4	1.2	0.8
9	Aid to other households	0.1	0.1	0.1	0.2	0.4	0.3
10	Community activities	0.1	0.1	0.1	0.3	0.2	0.3
11	<i>Work for a wage</i>	0.4	0.5	0.5	25.9	18.7	22.3
12	<i>Work in a farm of family business</i>	1.0	0.9	0.9	4.8	3.2	4.0
13	Work in labor market (11+12)	1.3	1.4	1.4	30.7	21.9	26.3
14	Total time (definition 1)	3.9	7.1	5.5	33.6	38.8	36.2
15	Total time (definition 2)	4.0	7.2	5.6	34.1	39.4	36.7
Rural areas							
1	<i>Cooking</i>	0.2	2.7	1.4	0.3	9.2	5.4
2	<i>Cleaning</i>	0.4	1.7	1.0	0.4	2.8	1.8
3	<i>Washing</i>	0.9	1.8	1.3	0.7	3.1	2.1
4	<i>Ironing</i>	0.1	0.2	0.2	0.3	0.5	0.4
5	<i>Market</i>	0.3	0.8	0.6	0.9	2.8	2.0
6	All domestic chores (1 to 5)	1.9	7.3	4.5	2.6	18.3	11.7
7	Collection of wood	2.5	1.5	2.0	1.6	2.4	2.1
8	Collection of water	1.5	2.6	2.0	0.7	3.3	2.2
9	Aid to other households	0.2	0.3	0.3	1.1	1.0	1.1
10	Community activities	0.2	0.1	0.2	1.2	0.6	0.9
11	<i>Work for a wage</i>	0.4	0.5	0.5	13.1	8.6	10.5
12	<i>Work in a farm of family business</i>	10.6	10.6	10.6	23.9	21.0	22.2
13	Work in labor market (11+12)	11.0	11.0	11.0	37.0	29.7	32.7
14	Total time (definition 1)	16.9	22.4	19.6	41.8	53.7	48.7
15	Total time (definition 2)	17.3	22.9	20.0	44.2	55.2	50.6

Source: Authors' estimation using EIBEP 2002-2003. Zeros are included. Total time (definition 1) is the sum of 6 (all domestic chores), 7 (collection of wood), 8 (collection of water), and 13 (work in labor market). Total time (definition 2) is the sum of total time (definition 1), 9 (aid to other households), and 10 (community activities).

Table 2: Selected values in the cumulative distribution of working time for various groups

	Mean	Median	25 th percentile	75 th percentile
Adult population (15 years of age and older), definition 1				
All	44.6	47.0	19.0	64.0
Men	38.8	44.0	8.0	57.0
Women	49.3	51.0	25.0	70.0
Gender gap (%)	+27.1	+15.9	+212.5	+22.8
Urban	36.2	31.0	5.0	61.0
Rural	48.7	49.0	32.0	65.0
Area gap (%)	+34.5	+58.1	+540.0	+6.6
Adult population (15 years of age and older), definition 2				
All	46.1	48.0	20.0	66.0
Men	40.5	46.0	9.0	60.0
Women	50.6	52.0	26.0	72.0
Gender gap (%)	+24.9	+13.0	+188.9	+20.0
Urban	36.7	32.0	5.0	62.0
Rural	50.6	51.0	34.0	68.0
Area gap (%)	+37.9	+59.4	+580.0	+9.7
Children (below 14 years of age), definition 1				
All	15.7	6.0	1.0	22.0
Boys	13.4	4.0	1.0	15.0
Girls	18.0	8.0	2.0	28.0
Gender gap (%)	+34.3	+100.0	+100.0	+86.7
Urban	5.5	2.0	0.0	6.0
Rural	19.6	9.0	3.0	35.0
Area gap (%)	+256.4	+350.0	n.d.	+483.3
Children (below 14 years of age), definition 1, by school enrollment status				
Not enrolled all	25.4	16.0	2.0	45.0
Not enrolled boys	24.1	13.0	1.0	45.0
Not enrolled girls	26.5	18.0	4.0	45.0
Gender gap (%)	+10.0	+38.5	+300.0	0.0
Enrolled all	6.8	4.0	1.0	9.0
Enrolled boys	5.5	3.0	0.0	7.0
Enrolled girls	8.4	5.0	1.0	11.0
Gender gap (%)	+52.7	+66.7	n.d.	+57.1

Source: Authors' estimation using EIBEP 2002-2003. Zeros are included. Total time (definition 1) is the sum of 6 (all domestic chores), 7 (collection of wood), 8 (collection of water), and 13 (work in labor market). Total time (definition 2) is the sum of total time (definition 1), 9 (aid to other households), and 10 (community activities). The 'area gap' in total hours is expressed as the higher % of total hours of rural with respect to urban area. The gender gap in total hours is expressed as the higher % of total hours of women with respect to men, or girls with respect to boys.

Table 3: Time poverty headcounts without consumption constraint

	Adult population					
	Time poverty line 50 hours/week			Time poverty line 70.5 hours/week		
	Urban	Rural	All	Urban	Rural	All
Men	37.4	34.7	35.7	11.7	8.3	9.5
Women	35.8	56.3	50.3	18.5	26.4	24.1
All	36.6	47.2	43.7	15.0	18.7	17.5
F/M	0.96	1.62	1.41	1.59	3.18	2.54
	Children					
	Time poverty line 50 hours/week			Time poverty line 9 hours/week		
	Urban	Rural	All	Urban	Rural	All
Boys	1.9	10.0	7.8	7.7	40.9	32.0
Girls	2.2	14.2	10.8	20.4	56.8	46.4
All	2.1	12.0	9.3	14.1	48.6	39.1
F/M	1.16	1.42	1.38	2.65	1.39	1.45

Source: Authors' estimation using EIBEP 2002-2003. For adults, the time poverty line of 70.5 hours/week corresponds to 1.5 times the median number of hours of all adults aged 15+ (47 hours/week). For children, the time poverty line of 9 hours/week corresponds to 1.5 times the median number of hours of work among children.

Table 4: Time poverty gap and squared poverty gap without consumption constraint

	Time poverty gap, adult population					
	Time poverty line 50 hours/week			Time poverty line 70.5 hours/week		
	Urban	Rural	All	Urban	Rural	All
Men	14.4	10.8	12.1	2.8	1.9	2.2
Women	17.5	26.9	24.1	4.4	7.1	6.3
All	15.9	20.1	18.7	3.6	4.9	4.5
F/M						
	Squared time poverty gap, adult population					
	Time poverty line 50 hours/week			Time poverty line 70.5 hours/week		
	Urban	Rural	All	Urban	Rural	All
Boys	9.5	6.6	7.6	1.4	0.9	1.1
Girls	13.0	20.8	18.5	1.9	3.3	2.9
All	11.2	14.8	13.6	1.6	2.3	2.1
F/M						

Source: Authors' estimation using EIBEP 2002-2003. For adults, the time poverty line of 70.5 hours/week corresponds to 1.5 times the median number of hours of all adults aged 15+ (47 hours/week).

Table 5: Time poverty headcounts with consumption constraint

	Adult population					
	Time poverty line 50 hours/week			Time poverty line 70.5 hours/week		
	Urban	Rural	All	Urban	Rural	All
Men	7.4	19.5	15.1	1.9	4.2	3.4
Women	8.1	31.5	24.7	4.0	14.0	11.1
All	7.7	26.4	20.4	2.9	9.9	7.6
F/M	1.09	1.62	1.64	2.11	3.33	3.26
	Children					
	Time poverty line 50 hours/week			Time poverty line 9 hours/week		
	Urban	Rural	All	Urban	Rural	All
Boys	0.7	6.6	5.0	2.2	27.0	20.4
Girls	0.8	8.6	6.4	5.0	34.6	26.2
All	0.8	7.6	5.7	3.6	30.7	23.2
F/M	1.14	1.30	1.28	2.27	1.28	1.28

Source: Authors' estimation using EIBEP 2002-2003. For adults, the time poverty line of 70.5 hours/week corresponds to 1.5 times the median number of hours of all adults aged 15+ (47 hours/week). For children, the time poverty line of 9 hours/week corresponds to 1.5 times the median number of hours of work among children.

Table 6: Time poverty gap and squared poverty gap with consumption constraint

	Time poverty gap, adult population					
	Time poverty line 50 hours/week			Time poverty line 70.5 hours/week		
	Urban	Rural	All	Urban	Rural	All
Men	2.5	5.7	4.6	0.4	0.9	0.7
Women	3.7	14.6	11.4	0.8	3.7	2.9
All	3.1	10.9	8.3	0.6	2.5	1.9
F/M						
	Squared time poverty gap, adult population					
	Time poverty line 50 hours/week			Time poverty line 70.5 hours/week		
	Urban	Rural	All	Urban	Rural	All
Boys	1.5	3.1	2.5	0.2	0.4	0.3
Girls	2.5	11.1	8.6	0.3	1.7	1.3
All	2.0	7.7	5.8	0.2	1.2	0.9
F/M						

Source: Authors' estimation using EIBEP 2002-2003. For adults, the time poverty line of 70.5 hours/week corresponds to 1.5 times the median number of hours of all adults aged 15+ (47 hours/week).

Table 7: Probit regression for the probability of being time poor (lower time poverty line)

	Probability of being time poor (working more than 70.5 hrs/week)						Probability of being time poor (working more than 70.5 hrs/week) and consumption poor					
	All		Men		Wome	n	All		Men		Wome	n
	(1)		(2)		(3)		(4)		(5)		(6)	
Age	0.012 ***		0.010 ***		0.015 ***		0.004 ***		0.002 ***		0.006 ***	
	(0.001)		(0.001)		(0.002)		(0.000)		(0.001)		(0.001)	
Age squared	-0.000 ***		-0.000 ***		-0.000 ***		-0.000 ***		-0.000 ***		-0.000 ***	
	(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
Female	0.033 ***						0.012 ***					
	(0.006)						(0.004)					
Rural	-0.072 ***		-0.043 ***		0.009		0.003		0.003		0.048 ***	
	(0.008)		(0.006)		(0.009)		(0.005)		(0.004)		(0.006)	
Female*rural	0.100 ***						0.036 ***					
	(0.012)						(0.007)					
Disabled	-0.087 ***		-0.044 ***		-0.139 ***		-0.029 ***		-0.013 ***		-0.050 ***	
	(0.008)		(0.009)		(0.011)		(0.003)		(0.004)		(0.005)	
Monogamous	0.077 ***		0.016		0.136 ***		0.016 ***		0.001		0.025 ***	
	(0.009)		(0.010)		(0.015)		(0.005)		(0.005)		(0.009)	
Poligamous	0.079 ***		0.014		0.131 ***		0.018 ***		-0.001		0.027 ***	
	(0.010)		(0.012)		(0.016)		(0.006)		(0.005)		(0.009)	
Divorced	0.087 ***		0.050 *		0.138 ***		0.015		0.018		0.017	
	(0.020)		(0.029)		(0.028)		(0.010)		(0.015)		(0.015)	
Widow/er	0.024		0.033		0.069 ***		-0.002		0.003		0.006	
	(0.015)		(0.040)		(0.022)		(0.007)		(0.016)		(0.012)	
Christian	0.023 **		0.001		0.049 ***		0.018 ***		0.013 *		0.024 **	
	(0.010)		(0.010)		(0.016)		(0.007)		(0.007)		(0.010)	
Other religion	0.007		0.006		0.014		0.012		0.014		0.011	
	(0.016)		(0.018)		(0.023)		(0.010)		(0.012)		(0.014)	
Primary	-0.066 ***		-0.048 ***		-0.075 ***		-0.024 ***		-0.015 ***		-0.034 ***	
	(0.006)		(0.006)		(0.011)		(0.003)		(0.003)		(0.006)	
Secondary 1 st	-0.075 ***		-0.052 ***		-0.093 ***		-0.032 ***		-0.018 ***		-0.052 ***	
	(0.006)		(0.005)		(0.013)		(0.003)		(0.003)		(0.006)	
Secondary 2 nd	-0.076 ***		-0.049 ***		-0.119 ***		-0.033 ***		-0.017 ***			
	(0.014)		(0.010)		(0.038)		(0.006)		(0.005)			
Technical	-0.076 ***		-0.048 ***		-0.105 ***		-0.029 ***		-0.013 ***		-0.059 ***	
	(0.009)		(0.008)		(0.017)		(0.005)		(0.004)		(0.005)	
University	-0.091 ***		-0.063 ***		-0.087 **		-0.035 ***		-0.020 ***			
	(0.008)		(0.006)		(0.036)		(0.004)		(0.003)			
Unknown ed.	-0.015		-0.045		0.014		0.011				0.040	
	(0.033)		(0.028)		(0.053)		(0.020)				(0.039)	
Infants (0-5)	-0.006		0.002		-0.012 **		0.009 ***		0.007 ***		0.012 ***	
	(0.004)		(0.004)		(0.006)		(0.002)		(0.002)		(0.003)	
Infants squared	0.001		0.000		0.002		-0.000		-0.000		-0.001	
	(0.001)		(0.001)		(0.001)		(0.000)		(0.000)		(0.000)	
Children (6-14)	-0.006 ***		-0.009 ***		-0.005		0.005 ***		0.001		0.008 ***	
	(0.002)		(0.003)		(0.004)		(0.002)		(0.001)		(0.002)	
Children squared	0.001 ***		0.001 ***		0.001 **		-0.000		-0.000		-0.000	
	(0.000)		(0.000)		(0.000)		(0.000)		(0.000)		(0.000)	
Adults (15-64)	-0.014 ***		-0.004 *		-0.025 ***		-0.003 ***		-0.001		-0.006 ***	
	(0.002)		(0.002)		(0.003)		(0.001)		(0.001)		(0.002)	
Adults squared	0.000 ***		0.000		0.001 ***		0.000		-0.000		0.000 **	

	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Seniors (65+)	0.008	0.002	0.010	0.013 **	0.004	0.021 **
	(0.011)	(0.010)	(0.016)	(0.005)	(0.005)	(0.009)
Seniors squared	-0.006	-0.001	-0.009	-0.004 *	-0.000	-0.008 **
	(0.006)	(0.005)	(0.009)	(0.003)	(0.002)	(0.004)
Disabled ind.	0.002	-0.007	0.010	0.010 **	0.004	0.015 **
	(0.007)	(0.007)	(0.011)	(0.004)	(0.004)	(0.007)
Only women	0.018		0.013	0.006		0.008
	(0.013)		(0.017)	(0.008)		(0.011)
Conakry	-0.007	0.030 **	-0.048 ***	0.007	0.020 **	-0.002
	(0.009)	(0.012)	(0.013)	(0.008)	(0.009)	(0.011)
Farannah	0.004	-0.004	0.010	0.028 ***	0.017 *	0.040 ***
	(0.010)	(0.011)	(0.016)	(0.009)	(0.009)	(0.013)
Kankan	-0.009	0.024 *	-0.036 **	0.020 **	0.033 ***	0.013
	(0.010)	(0.013)	(0.014)	(0.008)	(0.011)	(0.011)
Kindia	0.020 *	0.020	0.020	0.022 ***	0.015	0.030 **
	(0.011)	(0.013)	(0.015)	(0.008)	(0.009)	(0.012)
Labe	-0.027 ***	0.012	-0.060 ***	0.016 *	0.035 ***	0.008
	(0.010)	(0.013)	(0.014)	(0.008)	(0.013)	(0.012)
Mamou	0.031 **	0.033 **	0.028	0.028 ***	0.028 **	0.033 **
	(0.012)	(0.015)	(0.018)	(0.010)	(0.013)	(0.015)
Nzerekore	-0.048 ***	0.006	-0.097 ***	0.002	0.020 **	-0.011
	(0.009)	(0.012)	(0.012)	(0.007)	(0.010)	(0.009)
Observed probability	0.161	0.096	0.216	0.061	0.030	0.089
Predicted probability	0.129	0.081	0.183	0.040	0.023	0.061
Pseudo R ²	0.109	0.064	0.101	0.125	0.068	0.112
	-	-	-	-	-	-
Log likelihood	11746.7	4087.4	7555.7	6028.8	1731.7	4248.1
Observations	29911	13800	16111	29911	13767	15988

Source: Authors' estimation using EIBEP 2002-2003. Marginal effects (rather than coefficients) shown in the table. The marginal effect is computed at the mean of regressors. For dummy variables it is given for a discrete change from 0 to 1. Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%. Sample is restricted to individuals aged 15+. "Adults" are individuals aged 15-64; "seniors" are individuals aged 65+. The 'time poverty line' is 70.5 hours/week. The reference categories are: male, not disabled, urban, single never married, muslin, no education level (or never in school), no children aged 0-5 in the household, no children aged 6-14 in the household, no disabled people in the household, household with also men, and living in Boke. Predicted probability computed at the mean of the regressors.

Appendix Table A.1: Number of weekly hours spent for various activities, by sex, time spent collecting water, and urban/rural area

		Men 15+				Women 15+			
	<i>Urban</i>	0 hrs	1-4 hrs	4+ hrs	All	0 hrs	1-4 hrs	4+ hrs	All
1	Cooking	0.1	0.5	0.4	0.2	5.6	7.8	10.8	6.8
2	Cleaning	0.3	1.2	2.3	0.5	1.8	2.6	4.5	2.3
3	Washing	0.6	1.7	3.7	0.8	1.8	2.8	4.6	2.4
4	Ironing	0.5	1.3	2.6	0.7	0.8	1.3	2.1	1.1
5	Market	0.1	0.4	0.7	0.2	2.4	3.4	5.9	3.0
6	All domestic chores (1-5)	1.6	5.1	9.6	2.4	12.5	17.8	27.7	15.5
7	Collection of wood	0.1	0.4	0.8	0.2	0.1	0.3	0.4	0.2
8	Collection of water	0.0	1.6	7.5	0.4	0.0	1.9	7.5	1.2
9	Aid to other households	0.2	0.4	0.3	0.2	0.2	0.5	0.9	0.4
10	Community activities	0.3	0.3	0.2	0.3	0.2	0.3	0.4	0.2
11	Work for a wage	28.3	16.9	8.7	25.9	18.4	18.9	20.4	18.7
12	Work in a farm of family business	4.7	5.1	6.0	4.8	2.6	4.0	3.9	3.2
13	Work in labor market (11+12)	33.0	21.9	14.8	30.7	21.0	22.9	24.3	21.9
14	Total time (definition 1)	34.7	29.0	32.6	33.6	33.5	42.9	60.0	38.8
15	Total time (definition 2)	35.2	29.7	33.1	34.1	33.9	43.7	61.3	39.4
<i>Rural</i>									
1	Cooking	0.1	0.8	1.4	0.3	4.8	9.4	13.2	9.2
2	Cleaning	0.2	0.9	1.3	0.4	1.3	2.4	4.9	2.8
3	Washing	0.3	1.5	4.2	0.7	1.3	2.8	5.5	3.1
4	Ironing	0.2	0.8	0.8	0.3	0.2	0.5	0.7	0.5
5	Market	0.8	0.9	2.2	0.9	1.3	2.7	4.5	2.8
6	All domestic chores (1-5)	1.6	4.9	9.9	2.6	8.9	17.9	28.9	18.3
7	Collection of wood	1.2	2.4	7.1	1.6	0.9	2.1	4.6	2.4
8	Collection of water	0.0	1.7	8.8	0.7	0.0	2.2	9.0	3.3
9	Aid to other households	1.1	1.1	1.3	1.1	0.5	1.0	1.5	1.0
10	Community activities	1.3	0.9	1.1	1.2	0.3	0.6	0.8	0.6
11	Work for a wage	13.4	12.3	10.8	13.1	6.5	8.9	10.2	8.6
12	Work in a farm of family business	25.1	20.1	21.8	23.9	15.8	22.6	23.2	21.0
13	Work in labor market (11+12)	38.5	32.4	32.6	37.0	22.3	31.5	33.4	29.7
14	Total time (definition 1)	41.2	41.4	58.4	41.8	32.1	53.6	75.9	53.7
15	Total time (definition 2)	43.7	43.4	60.8	44.2	32.9	55.2	78.2	55.2

Source: Authors' estimation using EIBEP 2002-2003. Zeros are included. Total time (definition 1) is the sum of 6 (all domestic chores), 7 (collection of wood), 8 (collection of water), and 13 (work in labor market). Total time (definition 2) is the sum of total time (definition 1), 9 (aid to other households), and 10 (community activities).

Appendix Table A.2: Number of weekly hours spent for various activities, by sex, time spent collecting wood, and urban/rural area

		Men 15+				Women 15+			
	<i>Urban</i>	0 hrs	1-4 hrs	4+ hrs	All	0 hrs	1-4 hrs	4+ hrs	All
1	Cooking	0.1	0.7	0.3	0.2	6.7	7.5	11.7	6.8
2	Cleaning	0.5	0.9	1.3	0.5	2.2	2.5	5.0	2.3
3	Washing	0.8	1.2	1.9	0.8	2.3	2.5	5.5	2.4
4	Ironing	0.6	1.0	1.5	0.7	1.0	1.3	2.6	1.1
5	Market	0.2	0.7	0.2	0.2	3.0	2.9	6.0	3.0
6	All domestic chores (1-5)	2.2	4.6	5.2	2.4	15.3	16.8	30.7	15.5
7	Collection of wood	0.0	1.6	9.1	0.2	0.0	1.6	8.0	0.2
8	Collection of water	0.3	1.0	1.6	0.4	1.1	1.9	3.1	1.2
9	Aid to other households	0.2	0.7	1.1	0.2	0.3	0.7	1.3	0.4
10	Community activities	0.3	0.7	1.1	0.3	0.2	0.7	1.4	0.2
11	Work for a wage	26.3	20.2	12.5	25.9	18.6	20.0	22.6	18.7
12	Work in a farm of family business	4.7	4.9	15.7	4.8	3.1	3.7	8.1	3.2
13	Work in labor market (11+12)	31.0	25.1	28.2	30.7	21.7	23.7	30.7	21.9
14	Total time (definition 1)	33.6	32.2	44.1	33.6	38.1	43.9	72.4	38.8
15	Total time (definition 2)	34.1	33.6	46.2	34.1	38.6	45.3	75.1	39.4
<i>Rural</i>									
1	Cooking	0.1	0.5	0.5	0.3	7.1	9.2	13.9	9.2
2	Cleaning	0.2	0.6	0.8	0.4	2.2	2.6	4.7	2.8
3	Washing	0.2	1.1	2.2	0.7	2.1	2.9	6.1	3.1
4	Ironing	0.1	0.5	0.6	0.3	0.2	0.6	0.9	0.5
5	Market	0.7	1.0	1.6	0.9	2.0	2.6	5.0	2.8
6	All domestic chores (1-5)	1.3	3.7	5.6	2.6	13.6	17.9	30.5	18.3
7	Collection of wood	0.0	2.1	8.8	1.6	0.0	2.3	8.4	2.4
8	Collection of water	0.2	0.9	2.4	0.7	2.0	3.1	7.0	3.3
9	Aid to other households	1.0	1.2	1.4	1.1	0.6	1.1	1.7	1.0
10	Community activities	1.2	1.1	1.6	1.2	0.3	0.7	0.9	0.6
11	Work for a wage	14.8	11.3	10.2	13.1	6.6	9.0	12.1	8.6
12	Work in a farm of family business	23.0	24.4	26.7	23.9	18.6	22.3	23.0	21.0
13	Work in labor market (11+12)	37.8	35.7	36.9	37.0	25.2	31.3	35.1	29.7
14	Total time (definition 1)	39.2	42.4	53.7	41.8	40.8	54.4	81.0	53.7
15	Total time (definition 2)	41.4	44.7	56.7	44.2	41.7	56.2	83.7	55.2

Source: Authors' estimation using EIBEP 2002-2003. Zeros are included. Total time (definition 1) is the sum of 6 (all domestic chores), 7 (collection of wood), 8 (collection of water), and 13 (work in labor market). Total time (definition 2) is the sum of total time (definition 1), 9 (aid to other households), and 10 (community activities).

Appendix Table A.3: Wage regressions, by gender (individuals aged 10+, not in school, who earn a wage or profit)

	Men	Women
Age	0.039*** (3.976)	0.037*** (4.297)
Age squared	-0.000*** (3.650)	-0.000*** (4.147)
Disabled (<i>base not disabled</i>)	0.045 (0.334)	-0.180 (0.994)
<i>Marital status (base single)</i>		
Monogamous	0.157** (2.205)	0.183** (2.256)
Poligamous	0.373*** (4.379)	0.135 (1.597)
Divorced	-0.111 (0.616)	0.216* (1.878)
Widow/widower	0.252 (0.903)	0.057 (0.514)
<i>Education completed (base none)</i>		
Primary	0.211*** (3.131)	0.189** (2.232)
Secondary 1st	0.333*** (3.967)	0.288** (2.351)
Secondary 2nd	0.354** (2.016)	0.268 (0.666)
Technical	0.615*** (5.998)	0.656*** (4.275)
University	0.742*** (7.759)	0.994*** (4.432)
<i>Industrial sector (base manufacturing)</i>		
Agriculture	-0.801*** (9.116)	-1.112*** (10.617)
Mines	0.727*** (5.299)	-0.039 (0.185)
Energy	0.266 (0.838)	-1.742 (1.326)
Construction	0.174 (1.624)	-0.415 (0.703)
Trade	0.301*** (4.082)	-0.014 (0.167)
Transport	0.266*** (2.746)	-0.011 (0.032)
Finance, IT	-0.089 (0.544)	-0.286 (0.929)
Public admin, educ., health	-0.067 (0.745)	-0.399*** (3.106)
<i>Status in employment (base employee priv. sect., formal)</i>		
Public employee	0.338*** (3.395)	0.219 (1.172)
Employee priv. sect., inform.	-0.361*** (3.212)	-0.423** (2.127)
Self-employed	0.218** (2.259)	-0.082 (0.441)
<i>Type of contract (base permanent)</i>		
Seasonal	-0.309***	-0.165***

	(4.435)	(2.646)
Daily and piece work	-0.048	-0.066
	(0.722)	(1.035)
Rural (<i>base urban</i>)	-0.344***	-0.198***
	(5.326)	(3.032)
<i>Geographical area (base Conakry)</i>		
Boke	-0.005	-0.025
	(0.071)	(0.340)
Faranah	0.124	0.139*
	(1.575)	(1.832)
Kankan	0.015	0.068
	(0.174)	(0.799)
Kindia	0.041	-0.282***
	(0.503)	(3.513)
Labe	0.153*	0.105
	(1.704)	(1.088)
Mamou	0.376***	0.311***
	(3.835)	(3.303)
Nzerekore	-0.010	0.012
	(0.137)	(0.162)
Constant	5.210***	5.541***
	(23.790)	(22.038)
Observations	4350	4356
R-squared	0.276	0.239

Source: Authors' estimates using EIBEP 2002-03. Note: The dependent variable is the logarithm of the hourly wage, spatially adjusted (using poverty lines) for differences in purchasing power across regions; * significant at the 10% level, ** significant at the 5% level, ***significant at the 1% level.